Robot Assembly Instructions

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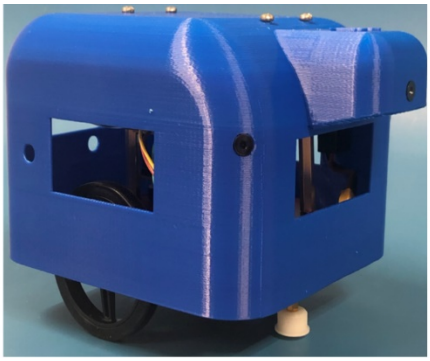
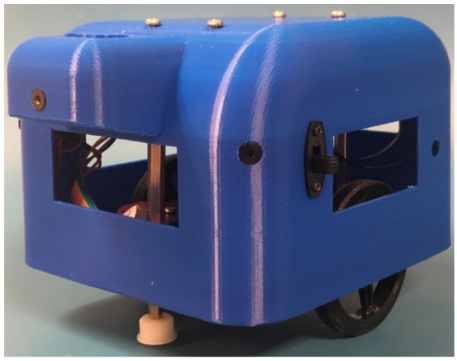
1 ROBOT VIEW

Top view



Right side view

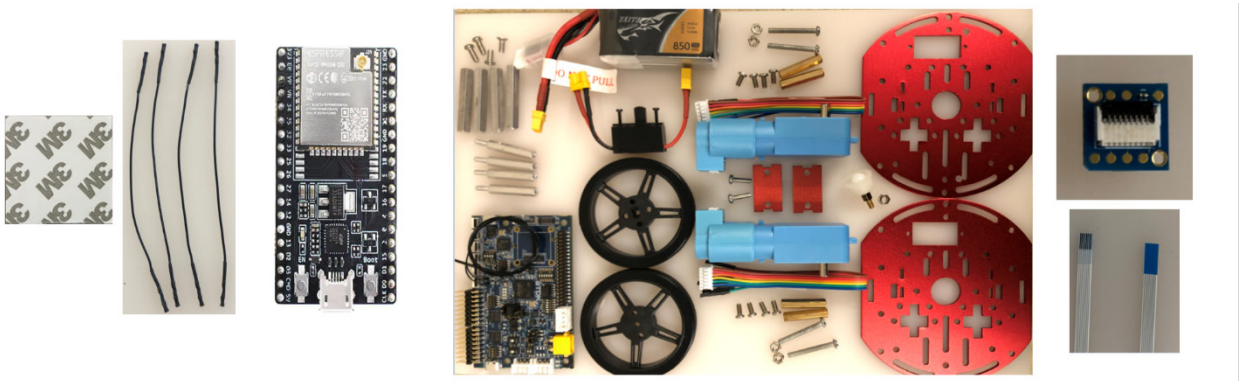


Left side view

2 KIT SUPPLY LIST

1. TDK RoboKit Board (1x)
2. 3D Printed Robot Shell (1x)
3. Chirp CH101 (3x)
4. Chirp Connector Cable (3x)
5. Power with on/Off Switch (1x)
6. Industrial IMU (IIM-4620) (1x)
7. ESP32 BLE Module (1x)
8. Wires Jumper (4x)
9. Body Bracket (2x)
10. DC Motor (2x)
11. Motor Cable (2x)
12. DC Bracket (2x)
13. Wheel (2x)
14. Free Wheel (1x)
15. Screws: M3x6mm (8x), M3x8mm (4x), M3x10mm (4x), M3x20mm (4x), and M3x25mm (4x)
16. Nut: M3 (5x)
17. Washer: M3 (4x)
18. Standoffs Female-Female: M3x23mm (4x) and M3x35mm (4x)
19. Standoff Male-Female: M3x25mm (4x)
20. Double side tape (1x)

Note: Battery is not included with this kit.

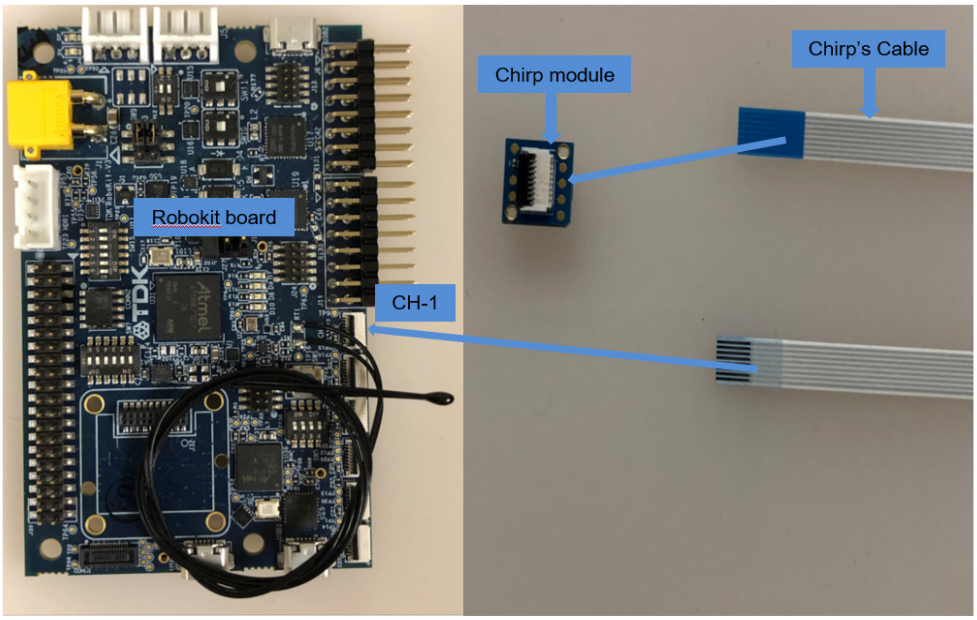


	DC MOTOR	Motor's Cable	DC Bracket	M3x24mm	M3 Nut	Free wheel	Wheel	M3x10	Body Bracket	4 M3x23mm	M3x6mm	M3x8mm	M3	M3x35	M3x25	BLE Board	Double tape	Wire Jumper	RoboKit Board	Chirp	Chirp's cable	Enclousure	M3x20	Battery	Power Switch
PIC																									
QYT	2	4	2	4	5	1	2	2	2	4	8	4	4	4	4	1	1	4	1	3	3	1	4	1	1

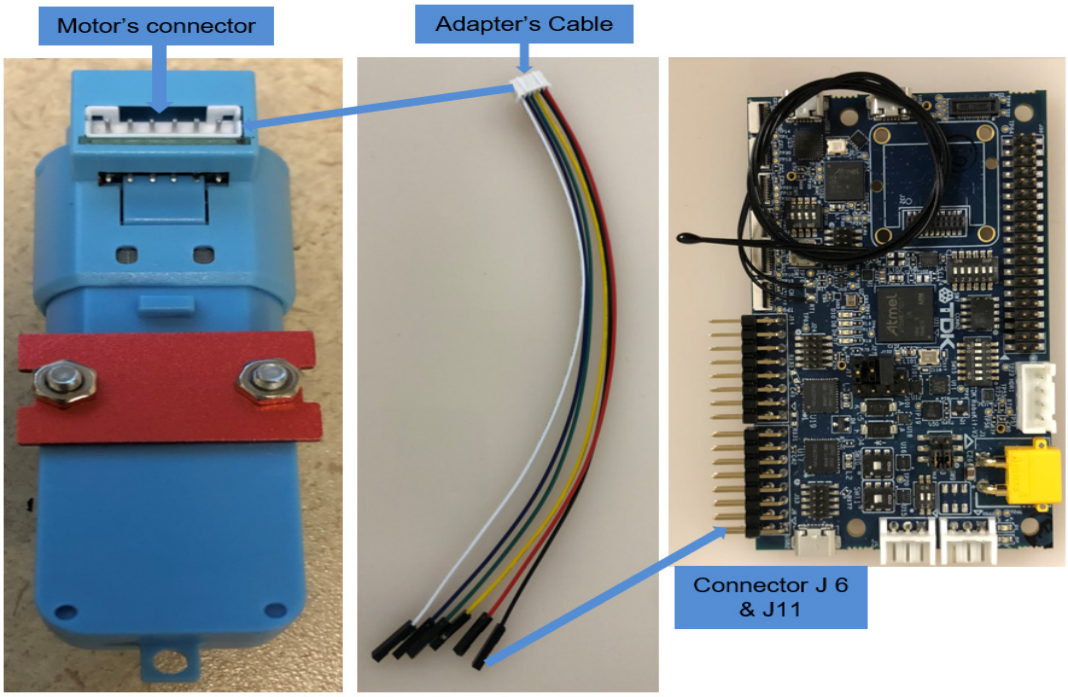
3 STEPS TO ASSEMBLE ROBOT

3.1 MOTOR CABLE CONNECTION AND CHIRP CABLE CONNECTION

1. One side of the Chirp cable connects to the Chirp module.
2. The other side of the Chirp cable connects to the RoboKit board connector.

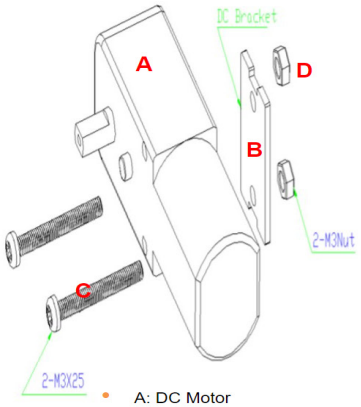


3. The Adapter cable connects to Motor's connector.
4. The other side of the Motor cable connects to the RoboKit board's connectors J6 and J11.

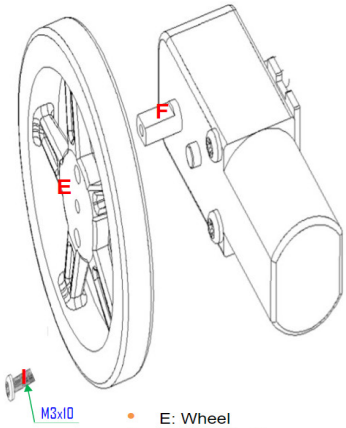


3.2 ASSEMBLE DC MOTOR HOLDER AND WHEEL

1. Take **B** and align it with the hole on **A**.
2. Drop **C** to into the hole on **A** and use M3 nut and tighten.
3. Put **E** in **F** and tighten the screw to secure the wheel.



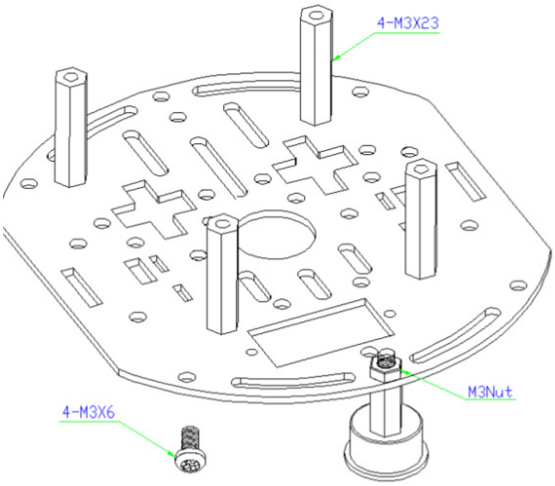
- A: DC Motor
- B: DC Bracket
- C:Screw M3x25scmm
- D: M3 Nut

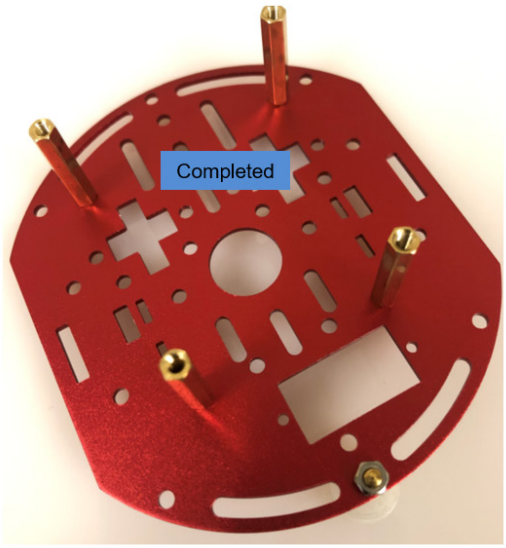


- E: Wheel
- F: Wheel holder
- I: Screw M3x10mm

3.3 ASSEMBLE 4–COPPER COLUMN AND FREE WHEEL (BOTTOM PLATE)

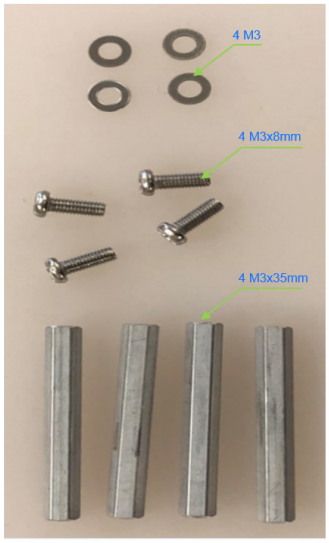
1. Install 4 standoffs M3x23mm to the bottom plate.
2. Put 4 screws M3x6mm under plate and tighten them.
3. Put the free wheel under the plate.
4. Use an M3 nut and tighten it.

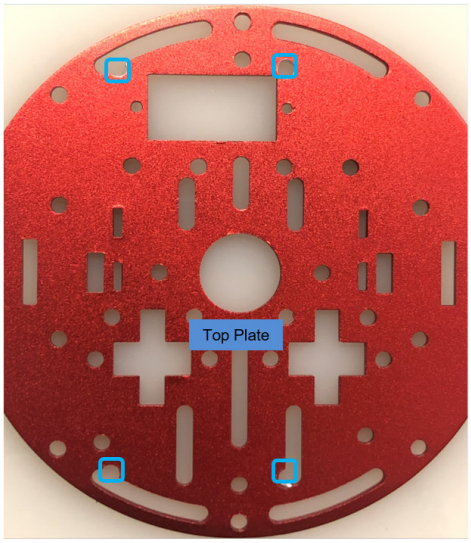


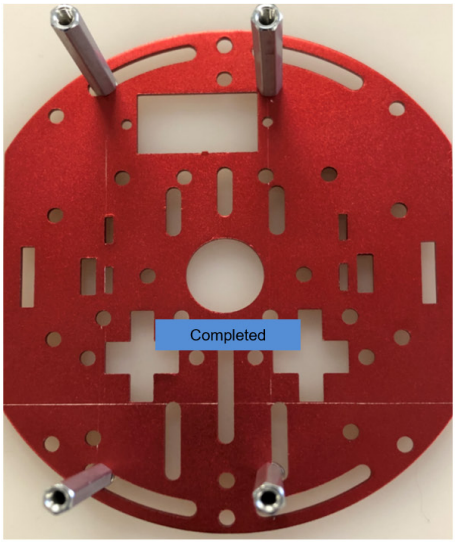


3.4 ASSEMBLE 4–ALUMINUMS COLUMN TOP BRACKET (TOP PLATE)

1. Install 4 standoffs M3x35mm to the areas of the plate that are highlighted by the blue squares in the image below.
2. Put 4 screws M3x8mm and 4 washer M3 under the plate and tighten them.

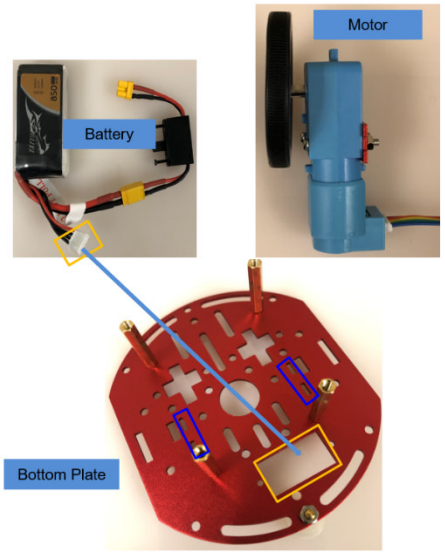


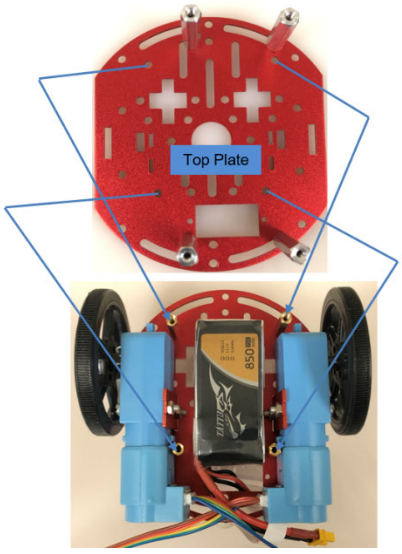


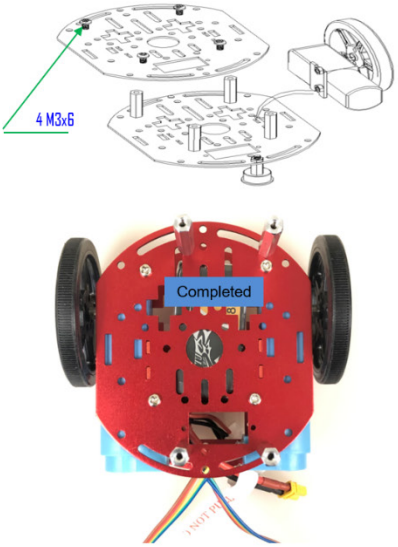


3.5 DC MOTOR, BATTERY, AND COVER TOP BRACKET

1. Put a battery on top of the bottom plate from section 3.3.
2. Drop power charge cable into the area of the bottom plate that is highlighted by an orange rectangle in the image below.
3. Slide the DC bracket into 2 holes in the area of the bottom plate that is highlighted by blue rectangles in the image below.
4. Take top plate from section 3.4.
5. Match the 4 holes on top plate with bottom plate's standoff.
6. Use M3x6mm then tighten them.





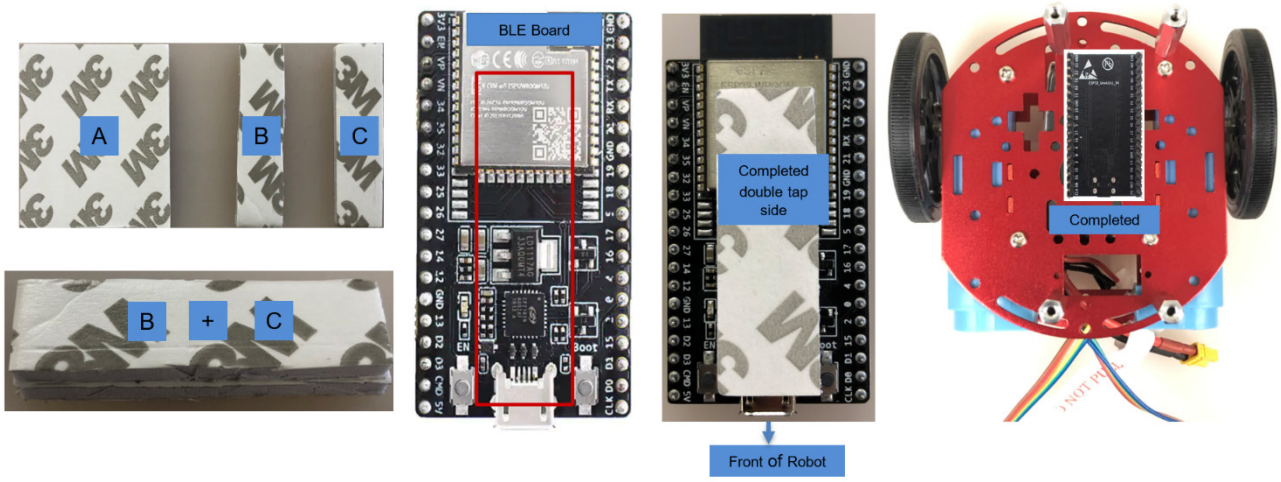


3.6 INSTALL BLE BOARD

Double-sided tape (A) has been cut in 2 pieces (B and C), and the width is 1.3 cm for each piece.

1. Tape B and C together and put it on the area of the BLE board highlighted by the red rectangle in the image below.
2. Turn the BLE board over and put it on the top plate of the Robot.

Note: Micro USB must be on the front of Robot.



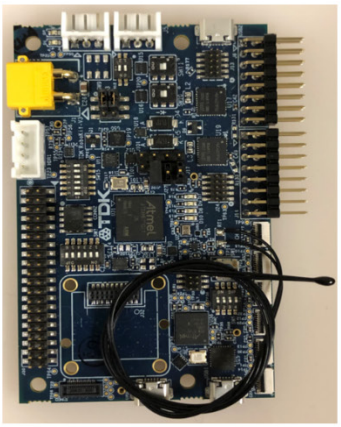
3.7 CONNECTION BETWEEN BLE BOARD AND ROBOKIT BOARD

Use jumper wires to connect:

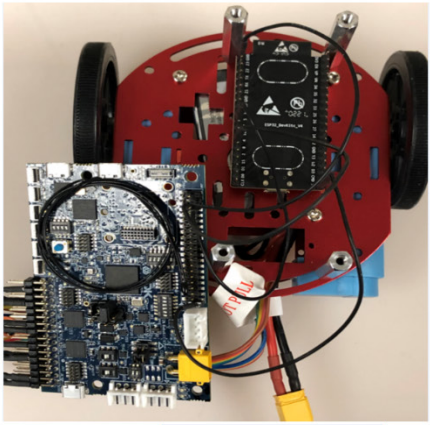
1. ESP 4 on ESP32 board → pin38 on J30 of RoboKit board
2. ESP 5 on ESP32 board → pin36 on J30 of RoboKit board
3. ESP 5V on ESP32 board → pin2 on J30 of RoboKit board
4. ESP GND on ESP32 board → pin39 or pin40 on J30 of RoboKit board

Jumper wires

ESP32 Board



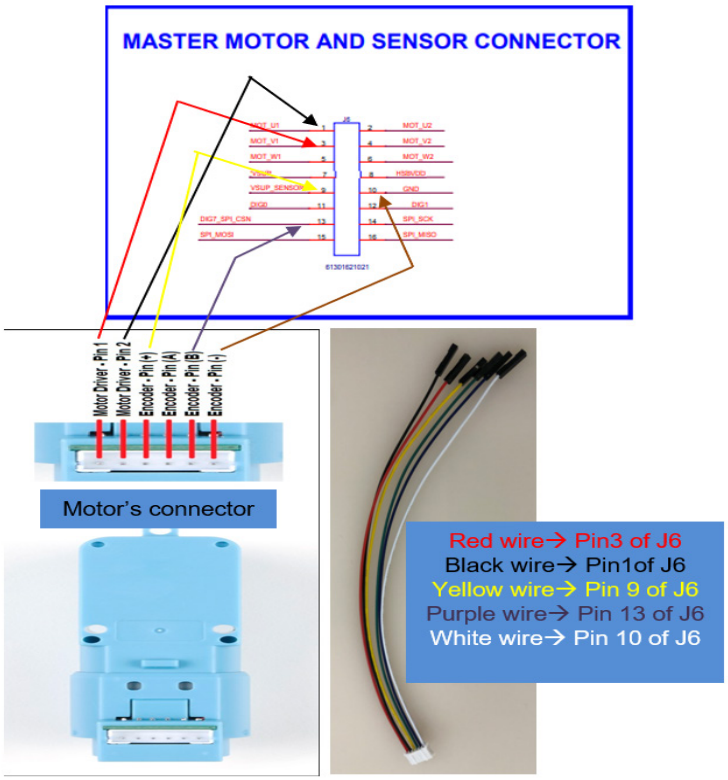
Robokit Board

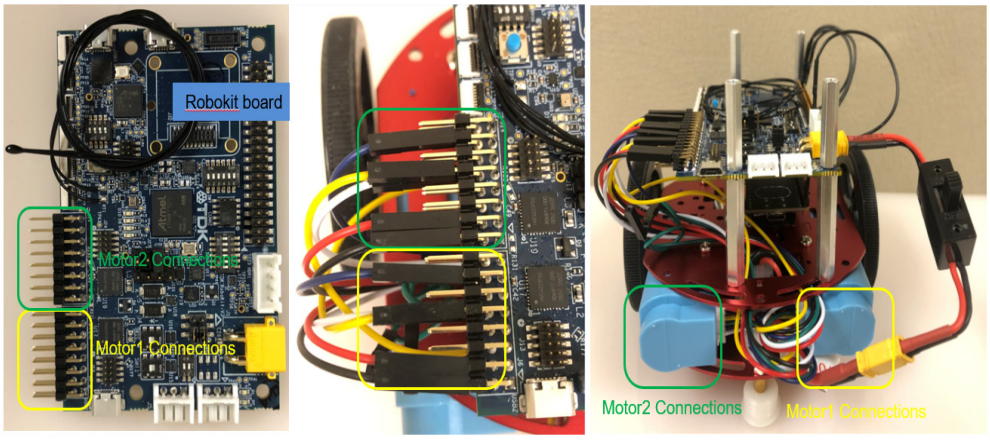


Completed wires connection

3.8 CONNECTION BETWEEN MOTOR AND ROBOKIT BOARD

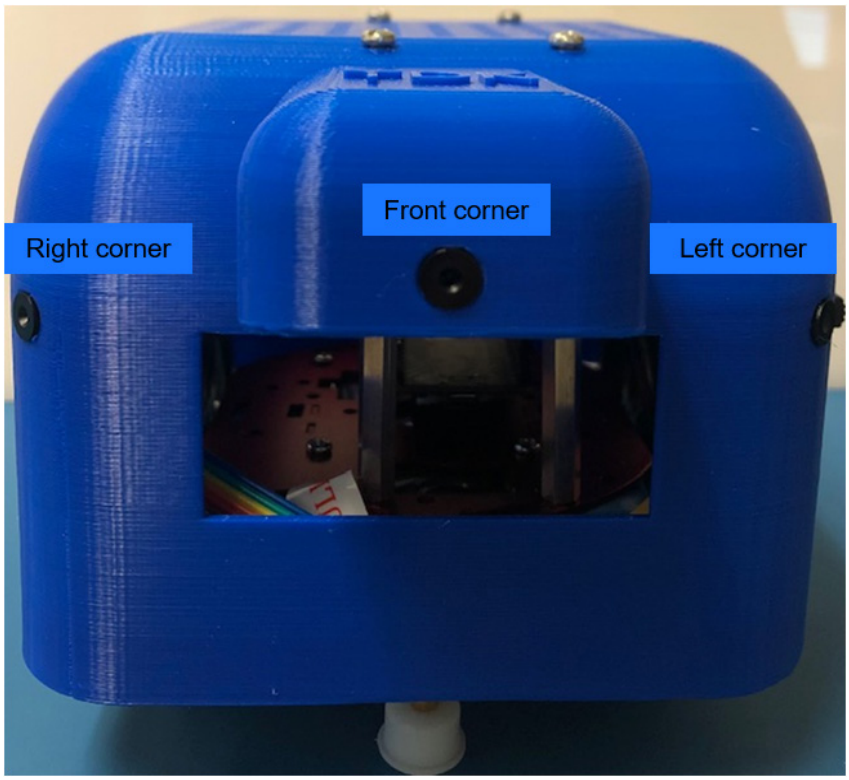
1. Wires' Motor 1→ J6 of RoboKit board
2. Wires' Motor 2 → J14 of RoboKit board
3. For both motors all the wires connect are the same below:
   a. Motor Driver-Pin1 → pin3 on J6 of RoboKit board
   b. Motor Driver-Pin2 → pin1 on J6 of RoboKit board
   c. Encoder-Pin (+) → pin9 on J6 of RoboKit board
   d. Encoder-Pin (B) → pin13 on J6 of RoboKit board
   e. Encoder-Pin (-) → pin10 on J6 of RoboKit board

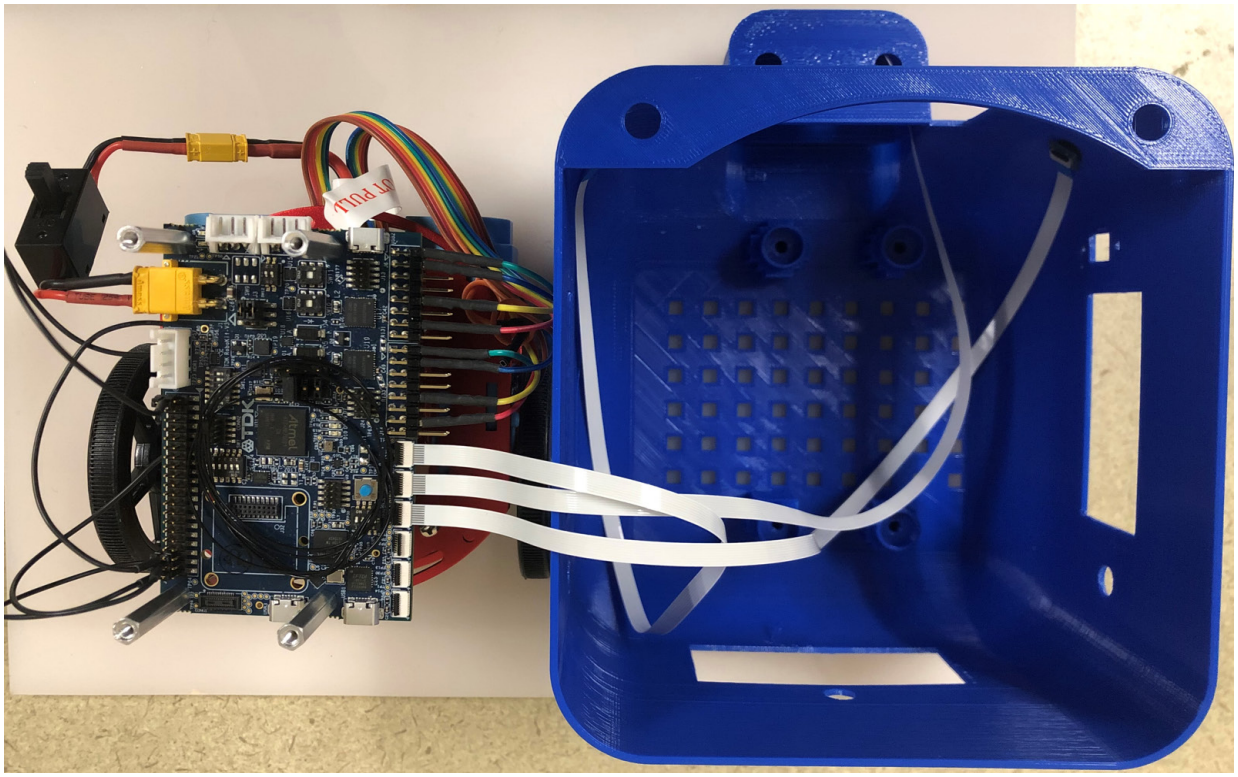




3.9 CHIRP CONNECTION LOCATIONS

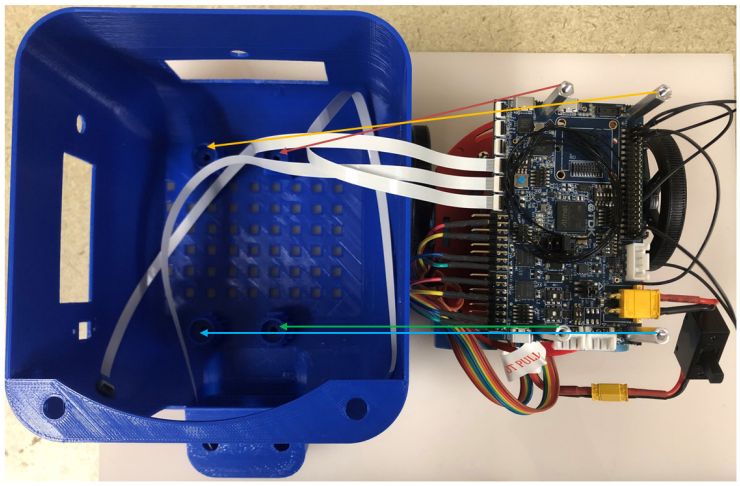
1. Right corner of cover → CH-1 of RoboKit board
2. Front of cover → CH-2 of RoboKit board
3. Left corner of cover → CH-1 of RoboKit board





3.10 CONNECT THE COVER TO THE ROBOT

1. Match the 4 holes on the cover with the 4 standoffs of the Robot and turn over the enclosure.
2. Drop 4 M3x20mm screws to the 4 holes of enclosure and tighten the screws.



4 REVISION HISTORY

REVISION DATE	REVISION	DESCRIPTION
11/30/2021	1.0	Initial release

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